$R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$  are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, eycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^2$  (X = O,  $NR^8$  or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>2</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>:

the dotted line indicates the presence of either a single or double bond;

B is S:

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G is NR7R8.

15 In another sub-embodiment, a structure of the formula (XIV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>5</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbotydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>6</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>;

the dotted line indicates the presence of either a single or double bond;

B is S:

G is SR7.

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5 In another sub-embodiment, a structure of the formula (XIV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^{1}$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^{7}$  (X = O,  $NR^{8}$  or S):

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>6</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>;

the dotted line indicates the presence of either a single or double bond;

B is NR7;

G is OR7.

In another sub-embodiment, a structure of the formula (XIV) is given wherein the compound or its pharmaceutically acceptable salts or product is defined as follows:

R<sup>1</sup> is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide,

a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>5</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>2</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>2</sup>R<sup>8</sup>, CR<sup>2</sup>R<sup>8</sup>CR<sup>2</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>2</sup>R<sup>8</sup>NR<sup>7</sup>:

the dotted line indicates the presence of either a single or double bond;

R is NR7:

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G is NR7R8.

In another sub-embodiment, a structure of the formula (XIV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or SI:

 $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$  are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^2$  (X = O,  $NR^8$  or S);

 $R^1$  and  $R^2$ ,  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^4$  and  $R^5$  and  $R^5$  and  $R^6$  can also each be comprised of one or two  $CR^7R^8$  groups, connected by a tether, selected

independently from groups that include  $CR^7R^8$ ,  $CR^7R^8CR^7R^8$ ,  $CR^7=CR^8$ ,  $CR^7R^8O$  and  $CR^7R^8NR^7$ ;

the dotted line indicates the presence of either a single or double bond;

B is NR?;

G is SR7.

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In a particular embodiment of the present invention, the compounds of the formula (XIV) are the following species:

$ \begin{array}{ccc} R^1 & & & & \\ R^2 & & & & \\ R^3 & & & & \\ \end{array} $ (XIV)										
G	В	R	R²	R3	R	Ks	R <sup>6</sup>			
OH	0	Me	H	Н	H	Me	Me			
OH	Ö	i-Pr	Н	Н	H	Me	Me			
OH	0	Ph	Н	H	Н	Me	Me			
OH	0	Me	Me	H	Н	Me	Me			
ОН	0	i-Pr	Me	Ħ	H	Me	Me			
OH	0	Ph	Me	H	H	Me	Me			
OH	0	Me	H	Me	Н	Me	Me			
OH	0	i-Pr	H	Me	H	Me	Me			
OH	0	Ph	H	Me	Н	Me	Me			
OH	0	Me	H	Н	Me	Me	Me			
OH	0	í-Pr	Н	Н	Me	Me	Me			

OH OH	R <sup>2</sup> O	R' Ph	R²	R <sup>3</sup>		)					
ОН	0	Ph		$\mathbb{R}^3$			(XIV)				
ОН	0				R	R,	$\mathbb{R}^{6}$				
	1		Н	Н	Me	Me	Me				
OH	$\overline{}$	Me	н	CH₂Ph	H	Me	Me				
1 1	0	i-Pr	Н	CH₂Ph	н	Me	Me				
OH	0	Ph	H	CH <sub>2</sub> Ph	н	Me	Me				
OH (	CH <sub>2</sub>	Me	H	Н	Н	Me	Me				
OH 6	CH <sub>2</sub>	i-Pr	H	H	Н	Me	Me				
OH 4	CH <sub>2</sub>	Ph	Н	H	Н	Me	Me				
OH (	CH <sub>2</sub>	Me	Me	н	H	Me	Me				
OH	CH <sub>2</sub>	i-Pr	Me	Н	H	Me	Me				
OH (	CH <sub>2</sub>	Ph	Me	Н	H	Me	Me				
OH (	CH <sub>2</sub>	Me	Н	Me	Н	Me	Me				
ОН	CH <sub>2</sub>	í-Pr	Н	Me	H	Me	Me				
OH	CH <sub>2</sub>	Ph	H	Me	H	Me	Me				
ОН	CH <sub>2</sub>	Me	H	Н	Me	Mc	Me				
ОН	CH <sub>2</sub>	i-Pr	H	H	Me	Me	Me				
OH	CH <sub>2</sub>	Ph	Н	H	Me	Me	Me				
OH	CH <sub>2</sub>	Me	Н	CH <sub>2</sub> Ph	B	Me	Me				
OH	CH <sub>2</sub>	i-Pr	H	CH <sub>2</sub> Ph	H	Me	Me				
ОН	CH <sub>2</sub>	Ph	Ħ	CH <sub>2</sub> Ph	н	Me	Me				

In a sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

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 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S).

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkoarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbonydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S).

R<sub>1</sub> and R<sub>2</sub>, R<sub>2</sub> and R<sub>3</sub>, R<sub>3</sub> and R<sub>4</sub>, R<sub>4</sub> and R<sub>5</sub> and R<sub>5</sub> and R<sub>6</sub> can also each be comprised of one or two CR<sub>7</sub>R<sub>8</sub> groups, connected by a tether, selected independently from groups that include CR<sub>7</sub>R<sub>8</sub>, CR<sub>7</sub>R<sub>8</sub>CR<sub>7</sub>R<sub>8</sub>, CR<sub>7</sub>=CR<sub>8</sub>, CR<sub>7</sub>R<sub>8</sub>O and CR<sub>7</sub>R<sub>8</sub>NR<sub>7</sub>.

the dotted line indicates the presence of either a single or double bond;

B and D are selected from the groups that include CR7R8, O, S or NR7;

G is selected from the groups that include OR7, NR7R8 or SR7.

In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^{I}$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^{7}$  (X = O,  $NR^{8}$  or S).

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sub>1</sub> and R<sub>2</sub>, R<sub>2</sub> and R<sub>3</sub>, R<sub>3</sub> and R<sub>4</sub>, R<sub>4</sub> and R<sub>5</sub> and R<sub>5</sub> and R<sub>6</sub> can also each be comprised of one or two CR<sub>7</sub>R<sub>8</sub> groups, connected by a tether, selected independently from groups that include CR<sub>7</sub>R<sub>8</sub>, CR<sub>7</sub>R<sub>6</sub>CR<sub>7</sub>R<sub>6</sub>, CR<sub>7</sub>=CR<sub>8</sub>, CR<sub>7</sub>R<sub>8</sub>O and CR<sub>4</sub>R<sub>8</sub>NR<sub>7</sub>; and

the dotted line indicates the presence of either a single or double bond;

D = O, B = O and  $G = OR^8$ .

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^{1}$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^{7}$  (X = O,  $NR^{8}$  or S).

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkonyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S).

R<sub>1</sub> and R<sub>2</sub>, R<sub>2</sub> and R<sub>3</sub>, R<sub>3</sub> and R<sub>4</sub>, R<sub>4</sub> and R<sub>5</sub> and R<sub>5</sub> and R<sub>6</sub> can also each be comprised of one or two CR<sub>2</sub>R<sub>8</sub> groups, connected by a tether, selected independently from groups that include CR<sub>7</sub>R<sub>8</sub>, CR<sub>7</sub>R<sub>6</sub>CR<sub>7</sub>R<sub>6</sub>, CR<sub>7</sub>=CR<sub>6</sub>, CR<sub>7</sub>R<sub>8</sub>O and CR<sub>7</sub>R<sub>8</sub>NR<sub>7</sub>.

the dotted line indicates the presence of either a single or double bond;

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D = O,  $B = NR^8$  and  $G = OR^8$ .

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcurbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S).

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfanyl, sulfanyl, sulfanonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>; and

the dotted line indicates the presence of either a single or double bond;

20  $D = O, B = CR^7R^8, \text{ and } G = OR^8.$ 

In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or produig are defined as follows:

R<sup>1</sup> is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S).

 $\mathbb{R}^2$ ,  $\mathbb{R}^3$ ,  $\mathbb{R}^4$ ,  $\mathbb{R}^5$ ,  $\mathbb{R}^6$ ,  $\mathbb{R}^7$  and  $\mathbb{R}^8$  are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl,

heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfanonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = 0,  $NR^8$  or S).

 $R^1$  and  $R^2$ ,  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^4$  and  $R^5$  and  $R^5$  and  $R^6$  can also each be comprised of one or two  $CR^7R^8$  groups, connected by a tether, selected independently from groups that include  $CR^7R^8$ ,  $CR^7R^8CR^7R^8$ ,  $CR^7=CR^8$ ,  $CR^7R^8O$  and  $CR^7R^8NR^7$ .

the dotted line indicates the presence of either a single or double bond;

$$D = O$$
.  $B = S$  and  $G = OR8$ .

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaccutically acceptable saits or prodrug are defined as follows:

 $R^{\xi}$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^{7}$  (X = O,  $NR^{g}$  or S);

 $R^2$ ,  $R^3$ ,  $R^6$ ,  $R^7$ ,  $R^8$  are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfannyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphiny, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sub>7</sub>R<sup>3</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>; and

the dotted line indicates the presence of either a single or double bond;

$$D = O$$
,  $B = O$  and  $G = NR^7R^8$ .

In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable saits or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>6</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>;

the dotted line indicates the presence of either a single or double bond;

$$D = O$$
,  $B = NR^8$  and  $G = NR^7R^8$ .

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkenyl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, cster,

alkcarbonyl, carbonyl, halide, a residue of a matural or synthetic amino acid, or carbohydrate or  $XR^2$  (X = 0,  $NR^8$  or S);

R<sub>1</sub> and R<sub>2</sub>, R<sub>2</sub> and R<sub>3</sub>, R<sub>3</sub> and R<sub>4</sub>, R<sub>4</sub> and R<sub>5</sub> and R<sub>5</sub> and R<sub>6</sub> can also sech be comprised of one or two CR<sub>7</sub>R<sub>8</sub> groups, connected by a tether, selected independently from groups that include CR<sub>7</sub>R<sub>8</sub>, CR<sub>7</sub>R<sub>6</sub>CR<sub>5</sub>R<sub>8</sub>, CR<sub>7</sub>=CR<sub>8</sub>, CR<sub>7</sub>R<sub>6</sub>CO and CR-R<sub>6</sub>NR<sub>7</sub>:

the dotted line indicates the presence of either a single or double bond;

D = O,  $B = CR^7R^8$  and  $G = NR^7R^8$ .

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10 In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalicyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S):

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sub>1</sub> and R<sub>2</sub>, R<sub>2</sub> and R<sub>3</sub>, R<sub>3</sub> and R<sub>4</sub>, R<sub>4</sub> and R<sub>5</sub> and R<sub>5</sub> and R<sub>5</sub> and R<sub>6</sub> can also each be comprised of one or two CR<sub>7</sub>R<sub>8</sub> groups, connected by a tether, selected independently from groups that include CR<sub>7</sub>R<sub>8</sub>, CR<sub>5</sub>R<sub>6</sub>CR<sub>7</sub>R<sub>8</sub>, CR<sub>7</sub>=CR<sub>8</sub>, CR<sub>7</sub>R<sub>8</sub>O and CR<sub>7</sub>R<sub>8</sub>NR<sub>7</sub>;

the dotted line indicates the presence of either a single or double bond;

D = O, B = S and  $G = NR^7R^8$ .

In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or produig are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S):

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfamyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphiny, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>;

the dotted line indicates the presence of either a single or double bond;

 $D = CR^7R^8$ , B = O and  $G = OR^8$ .

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester,

alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbonydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>;

the dotted line indicates the presence of either a single or double bond;

$$D = CR^7R^8$$
,  $B = NR^8$  and  $G = OR^8$ .

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10 In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaccutically acceptable salts or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S):

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic smino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

 $R^1$  and  $R^2$ ,  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^4$  and  $R^5$  and  $R^5$  and  $R^6$  can also each be comprised of one or two  $CR^7R^8$  groups, connected by a tether, selected independently from groups that include  $CR^7R^8$ ,  $CR^7R^8CR^7R^8$ ,  $CR^7=CR^8$ ,  $CR^7R^8O$  and  $CR^7R^8NR^7$ :

the dotted line indicates the presence of either a single or double bond;

$$D = CR^7R^8$$
,  $B = CR^7R^8$  and  $G = OR^8$ .

In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>2</sup> (X = O. NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>2</sup>R<sup>5</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>;

the dotted line indicates the presence of either a single or double bond;

$$D = CR^7R^8$$
,  $B = S$ , and  $G = OR^8$ .

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable saits or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclie, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester,

alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = 0,  $NR^8$  or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>2</sup>R<sup>6</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>:

the dotted line indicates the presence of either a single or double bond;

$$D = CR^7R^8$$
,  $B = O$  and  $G = NR^7R^8$ .

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10 In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

 $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$  are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfanyl, sulfamyl, sulfamynl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or earbohydrate or  $XR^7$  (X=0,  $NR^8$  or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>:

the dotted line indicates the presence of either a single or double bond;

$$D = CR^{7}R^{8}$$
,  $B = NR^{8}$  and  $G = NR^{7}R^{8}$ .

In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or SR).

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carboxyl, halide, a residue of a natural or synthetic amino acid, or carbolydrate or XR<sup>7</sup> (X = O, NR<sup>2</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>2</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>6</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>:

the dotted line indicates the presence of either a single or double bond;

$$D = CR^7R^8$$
,  $B = CR^7R^8$  and  $G = NR^7R^8$ .

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20 In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfanyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester,

alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>2</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>2</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>2</sup>R<sup>8</sup>, CR<sup>2</sup>R<sup>8</sup>CR<sup>2</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>2</sup>R<sup>8</sup>O and CR<sup>2</sup>R<sup>8</sup>NR<sup>7</sup>:

the dotted line indicates the presence of either a single or double bond;

$$D = CR^7R^8$$
,  $B = S$  and  $G = NR^7R^8$ .

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>5</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>2</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>2</sup>R<sup>8</sup>, CR<sup>2</sup>R<sup>8</sup>CR<sup>3</sup>R<sup>8</sup>, CR<sup>2</sup>=CR<sup>8</sup>, CR<sup>2</sup>R<sup>8</sup>O and CR<sup>2</sup>R<sup>8</sup>NR<sup>2</sup>;

the dotted line indicates flie presence of either a single or double bond;

$$D = S$$
,  $B = O$  and  $G = OR^8$ .

In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carboxyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O. NR<sup>2</sup> or S);

R<sup>3</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>3</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>3</sup>, CR<sup>7</sup>R<sup>3</sup>CR<sup>7</sup>R<sup>3</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>:

the dotted line indicates the presence of either a single or double bond;

D = S,  $B = NR^8$  and  $G = OR^8$ .

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^{T}$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^{T}$  (X = O,  $NR^{S}$  or S):

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

 $R^1$  and  $R^2$ ,  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^4$  and  $R^5$  and  $R^5$  and  $R^6$  can also each be comprised of one or two  $CR^7R^8$  groups, connected by a tether, selected independently from groups that include  $CR^7R^8$ ,  $CR^7R^8CR^7R^8$ ,  $CR^7E^8CR^7R^8$ ,  $CR^7R^8CR^7R^8$ .

5 the dotted line indicates the presence of either a single or double bond;

$$D = S$$
,  $B = CR^7R^8$  and  $G = OR^8$ .

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

- R<sup>1</sup> is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);
  - R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphinc, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = 0, NR<sup>8</sup> or S);
  - R¹ and R², R² and R³, R² and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR¹R³ groups, connected by a tether, selected independently from groups that include CR¹R³, CR²R³CR²R³, CR²=CR³, CR²R³O and CR²R⁵NR²;

the dotted line indicates the presence of either a single or double bond;

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$$D = S, B = S, and G = OR^8$$
.

In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>6</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>6</sup>R<sup>8</sup>NR<sup>6</sup>:

the dotted line indicates the presence of either a single or double bond;

D = S, B = O and  $G = NR^7R^8$ .

S

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

- R<sup>1</sup> is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S):
- R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfanonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup>(X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>;

the dotted line indicates the presence of either a single or double bond;

D = S,  $B = NR^8$  and  $G = NR^7R^8$ .

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>6</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfanyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a teiher, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>5</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>:

the dotted line indicates the presence of either a single or double bond;

25  $D = S, B = CR^7R^8 \text{ and } G = NR^7R^8.$ 

In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

 $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$  are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>2</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>2</sup>R<sup>8</sup>, CR<sup>2</sup>R<sup>8</sup>CR<sup>3</sup>R<sup>8</sup>, CR<sup>2</sup>=CR<sup>8</sup>, CR<sup>2</sup>R<sup>8</sup>O and CR<sup>2</sup>R<sup>8</sup>NR<sup>7</sup>;

the dotted line indicates the presence of either a single or double bond;

D = S, B = S and  $G = NR^7R^8$ .

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S):

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamenyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

 $R^1$  and  $R^2$ ,  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^4$  and  $R^5$  and  $R^5$  and  $R^6$  can also each be comprised of one or two  $CR^7R^8$  groups, connected by a tether, selected

independently from groups that include  $CR^7R^8$ ,  $CR^2R^8CR^7R^8$ ,  $CR^7mCR^3$ ,  $CR^7R^8O$ and  $CR^7R^8NR^7$ ;

the dotted line indicates the presence of either a single or double bond;

 $D = NR^7$ , B = O and  $G = OR^8$ .

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmacentically acceptable salts or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or  $SI_X$ )

 $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^5$ ,  $R^7$ ,  $R^8$  are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfamyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>6</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>3</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>3</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>:

the dotted line indicates the presence of either a single or double bond;

 $D = NR^7$ ,  $B = NR^8$  and  $G = OR^8$ .

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

R<sup>1</sup> is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, balide,

a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = 0,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanonyl, carboxylic acid, amide, nitro, cyano, azide, phosphenyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, earhonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>2</sup> (X = O, NR<sup>8</sup> or S);

 $R^1$  and  $R^2$ ,  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^4$  and  $R^5$  and  $R^5$  and  $R^6$  can also each be comprised of one or two  $CR^7R^8$  groups, connected by a tether, selected independently from groups that include  $CR^7R^8$ ,  $CR^7R^8CR^7R^8$ ,  $CR^7=CR^8$ ,  $CR^7R^8CR^7R^8$ ; and  $CR^7R^8NR^7$ ;

the dotted line indicates the presence of either a single or double bond;

$$D = NR^7$$
,  $B = CR^7R^8$  and  $G = OR^8$ .

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaccutically acceptable saits or product are defined as follows:

 $R^{1}$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^{7}$  (X = O,  $NR^{8}$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

 $R^1$  and  $R^2$ ,  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^4$  and  $R^5$  and  $R^5$  and  $R^6$  can also each be comprised of one or two  $CR^2R^8$  groups, connected by a tether, selected

independently from groups that include  $CR^7R^8$ ,  $GR^7R^8CR^7R^8$ ,  $CR^7 = CR^8$ ,  $CR^7R^8O$  and  $CR^7R^8NR^7$ ;

the dotted line indicates the presence of either a single or double bond;

$$D = NR^7$$
,  $B = S$ , and  $G = OR^8$ .

S

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S):

 $R^3$ ,  $R^3$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$  are selected independently from the groups that include hydrogen, alkyl, aikenyl, aikynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfannonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkoarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

 $R^1$  and  $R^2$ ,  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^4$  and  $R^5$  and  $R^5$  and  $R^6$  can also each be comprised of one or two  $CR^7R^8$  groups, connected by a tether, selected independently from groups that include  $CR^7R^8$ ,  $CR^7R^8CR^7R^8$ ,  $CR^7=CR^8$ ,  $CR^7R^8O$  and  $CR^7R^8NR^7$ ;

the dotted line indicates the presence of either a single or double bond;

$$D = NR^7$$
,  $B = O$  and  $G = NR^7R^8$ .

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

R<sup>1</sup> is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylaikyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide,

a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or Si:

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>5</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O.NR<sup>8</sup> or S);

 $R^1$  and  $R^2$ ,  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^4$  and  $R^5$  and  $R^5$  and  $R^6$  can also each be comprised of one or two  $CR^7R^8$  groups, connected by a tether, selected independently from groups that include  $CR^7R^8$ ,  $CR^7R^8CR^7R^8$ ,  $CR^7=CR^8$ ,  $CR^7R^8O$  and  $CR^7R^5NR^7$ :

the dotted line indicates the presence of either a single or double bond;

$$D = NR^7$$
,  $B = NR^8$  and  $G = NR^7R^8$ .

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^{I}$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^{7}$  (X = O,  $NR^{8}$  or S):

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

 $R^1$  and  $R^2$ ,  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^6$  and  $R^5$  and  $R^5$  and  $R^6$  can also each be comprised of one or two  $CR^7R^8$  groups, connected by a tether, selected

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independently from groups that include  $CR^7R^8$ ,  $CR^3R^8CR^7R^8$ ,  $CR^7=CR^8$ ,  $CR^7R^8O$  and  $CR^7R^8NR^7$ ;

the dotted line indicates the presence of either a single or double bond;

$$D = NR^7$$
,  $B = CR^7R^8$  and  $G = NR^7R^8$ .

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In another sub-embodiment, a structure of the formula (XV) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>2</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>;

the dotted line indicates the presence of either a single or double bond;

$$D = NR^7$$
,  $B = S$  and  $G = NR^7R^8$ .

In a particular embodiment of the present invention, the compounds of the formula (XV) are the following species:

	***************************************		R <sup>1</sup>	1	R <sup>6</sup>							
Ŕ³												
G	В	Ð	R'	R²	R3	R'	R <sup>5</sup>	R				
OH	0	Ō	Me	Н	H	H	Me	Me				
ОH	0	0	i-Pr	Н	H	Н	Me	Me				
OH	0	0	Ph	H	H	Н	Me	Me				
OH	0	0	Me	Me	H	Н	Me	Me				
OH	ō	0	<i>i</i> -Pr	Me	н	H	Me	Me				
OH	0	0	Ph	Me	н	H	Me	Me				
ОН	0	0	Me	H	Me	H	Me	Me				
OH	0	0	i-Pr	Ħ	Me	Н	Me	Me				
OH	0	O	Ph	H	Me	H	Me	Me				
OH	0	0	Me	H	H	Me	Me	Me				
OH	0	0	i-Pr	H	H	Me	Me	Me				
OH	0	0	Ph	H	Н	Me	Me	Me				
OH	0	0	Me	H	CH <sub>2</sub> Ph	H	Me	Me				
OH	0	0	i-Pr	H	CH <sub>2</sub> Ph	H	Me	Me				
OH	0	0	Ph	H	CH₂Ph	Н	Me	Me				
OH	. CH <sub>2</sub>	0	Me	H	H	H	Me	Me				
OH	CH <sub>2</sub>	0	í-Pr	Н	Н	H	Me	Me				

$R^1$ $R^5$ $R^5$ $R^5$											
G	В	D	R <sup>1</sup>	R <sup>2</sup>	R <sup>3</sup>	R*	R <sup>5</sup>	R°			
OH	CH <sub>2</sub>	0	Ph	Н	Н	Н	Me	Me			
OH	CH <sub>2</sub>	0	Me	Me	Н	Я	Me	Me			
OH	CH <sub>2</sub>	O	i-Pr	Me	Ħ	H	Me	Me			
ОН	CH <sub>2</sub>	0	Ph	Me	Н	H	Me	Me			
OH	CH <sub>2</sub>	0	Me	H	Me	H	Me	Me			
OH	CH <sub>2</sub>	0	i-Pr	H	Me	Н	Me	Me			
OH	CH <sub>2</sub>	0	Ph	H	Me	H	Me	Me			
OH	CH <sub>2</sub>	0	Me	Н	Н	Me	Me	Me			
OH	CH <sub>2</sub>	0	i-Pr	Н	H	Me	Me	Me			
OH	CH <sub>2</sub>	0	Ph	Ħ	H	Me	Me	Me			
OH	CH <sub>2</sub>	0	Me	Н	CH <sub>2</sub> Ph	H	Me	Me			
OH	CH <sub>2</sub>	0	i-Pr	Н	CH₂Ph	Н	Me	Me			
OH	CH <sub>2</sub>	0	Ph	H	CH <sub>2</sub> Ph	H	Me	Me			
OH	0	CH <sub>2</sub>	Me	Н	Н	H	Me	Me			
OH	0	CH <sub>2</sub>	i-Pr	H	Н	H	Me	Me			
OH	0	CH <sub>2</sub>	Ph	Н	H	H	Me	Me			
OH	0	CH <sub>2</sub>	Me	Me	II	H	Me	Me			
ОН	O	CH <sub>2</sub>	<i>i-</i> Pr	Me	H	H	Me	Me			
OH	0	CH <sub>2</sub>	Ph	Me	Н	H	Me	Me			

$ \begin{array}{cccccccccccccccccccccccccccccccccccc$											
G	В	D	R	R²	R <sup>3</sup>	R*	RS	R <sup>6</sup>			
OH	0	CH <sub>2</sub>	Ме	H	Me	H	Me	Mc			
OH	0	CH <sub>2</sub>	i-Pr	Н	Me	H	Me	Me			
ОН	0	CH <sub>2</sub>	Ph	H	Me	H	Me	Me			
OH	0	CH <sub>2</sub>	Me	Н	H	Me	Me	Me			
OH	0	CH <sub>2</sub>	<i>i-</i> Pr	H	H	Me	Me	Me			
OH	0	CH <sub>2</sub>	Ph	H	н	Me	Me	Me			
OH	0	CH <sub>2</sub>	Me	H	CH <sub>2</sub> Ph	H	Me	Me			
OH	0	CH <sub>2</sub>	i-Pr	H	CH <sub>2</sub> Ph	Н	Me	Me			
OH	0	CH <sub>2</sub>	Ph	H	CH <sub>2</sub> Ph	H	Me	Me			

In a sub-embodiment, a structure of the formula (XVI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

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 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^2$  (X = O,  $NR^8$  or S).

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphoryl, phosphine, carbamate, ester,

alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S).

R<sub>1</sub> and R<sub>2</sub>, R<sub>2</sub> and R<sub>3</sub>, R<sub>3</sub> and R<sub>4</sub>, R<sub>4</sub> and R<sub>5</sub> and R<sub>5</sub> and R<sub>6</sub> can also each be comprised of one or two CR<sub>7</sub>R<sub>8</sub> groups, connected by a tether, selected independently from groups that include CR<sub>7</sub>R<sub>8</sub>, CR<sub>7</sub>R<sub>8</sub>CR<sub>7</sub>R<sub>6</sub>, CR<sub>7</sub>=CR<sub>8</sub>, CR<sub>7</sub>R<sub>8</sub>O and CR<sub>7</sub>R<sub>8</sub>NR<sub>7</sub>.

The dotted line indicates the presence of either a single or double bond;

D is selected from the groups that include CR7R8, O, S or NR7;

G is selected from the groups that include OR7, NR7R8 or SR7.

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In another sub-embodiment, a structure of the formula (XVI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S).

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R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>3</sup> or S);

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R<sub>1</sub> and R<sub>2</sub>, R<sub>2</sub> and R<sub>3</sub>, R<sub>3</sub> and R<sub>4</sub>, R<sub>4</sub> and R<sub>5</sub> and R<sub>5</sub> and R<sub>6</sub> can also each be comprised of one or two CR<sub>7</sub>R<sub>8</sub> groups, connected by a tether, selected independently from groups that include CR<sub>7</sub>R<sub>8</sub>, CR<sub>7</sub>R<sub>8</sub>CR<sub>7</sub>R<sub>6</sub>, CR<sub>7</sub>=CR<sub>8</sub>, CR<sub>7</sub>R<sub>8</sub>O and CR<sub>8</sub>R<sub>8</sub>NR<sub>7</sub>; and

The dotted line indicates the presence of either a single or double bond;

D is O:

G is OR7.

In another sub-embodiment, a structure of the formula (XVI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S).

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbothydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S).

 $R_1$  and  $R_3$ ,  $R_2$  and  $R_3$ ,  $R_3$  and  $R_4$ ,  $R_4$  and  $R_5$  and  $R_3$  and  $R_6$  can also each be comprised of one or two  $CR_7R_8$  groups, connected by a tether, selected independently from groups that include  $CR_7R_8$ ,  $CR_7R_8CR_7R_8$ ,  $CR_7=CR_5$ ,  $CR_7R_8O$  and  $CR_7R_8N_7$ .

The dotted line indicates the presence of either a single or double bond;

D is O:

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Gis NR7R8.

In another sub-embodiment, a structure of the formula (XVI) is given wherein the compound or its pharmaceutically acceptable salts or produce is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S).

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl,

heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkoarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbonydrate of  $XR^7$  (X = O,  $NR^3$  or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>2</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>3</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>; and

The dotted line indicates the presence of either a single or double bond;

D is O;

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G is SR7.

In another sub-embodiment, a structure of the formula (XVI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^2$  (X = O,  $NR^8$  or S).

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>5</sup>, R<sup>7</sup> and R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S).

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>2</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>.

The dotted line indicates the presence of either a single or double bond;

D is CR7R8;

GOR?

S

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In another sub-embodiment, a structure of the formula (XVI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R<sup>1</sup> is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyche, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfanyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>2</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sub>2</sub>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>; and

The dotted line indicates the presence of either a single or double bond;

20 D is CR<sup>7</sup>R<sup>8</sup>;

G is NR7R8.

In another sub-embodiment, a structure of the formula (XVI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

 $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$  are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synihetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>2</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>;

The dotted line indicates the presence of either a single or double bond;

D is CR7R8;

G is SR7.

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In another sub-embodiment, a structure of the formula (XVI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S):

 $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$  are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearboxyl, carboxyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sub>1</sub> and R<sub>2</sub>, R<sub>2</sub> and R<sub>3</sub>, R<sub>3</sub> and R<sub>4</sub>, R<sub>4</sub> and R<sub>5</sub> and R<sub>6</sub> and R<sub>6</sub> can also each be comprised of one or two CR<sub>7</sub>R<sub>8</sub> groups, connected by a tether, selected independently from groups that include CR<sub>7</sub>R<sub>8</sub>, CR<sub>7</sub>R<sub>6</sub>CR<sub>7</sub>R<sub>8</sub>, CR<sub>7</sub>=CR<sub>6</sub>, CR<sub>7</sub>R<sub>8</sub>O and CR<sub>7</sub>R<sub>8</sub>NR<sub>7</sub>;

The dotted line indicates the presence of either a single or double bond;

D is S:

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Gis OR7.

5 In another sub-embodiment, a structure of the formula (XVI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $\mathbb{R}^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocychic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $X\mathbb{R}^7$  (X = O,  $N\mathbb{R}^8$  or S):

 $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$  are selected independently from the groups that include hydrogen, alkyi, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfannyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>5</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>;

The dotted line indicates the presence of either a single or double bond;

D is S:

G is NR7R8.

In another sub-embodiment, a structure of the formula (XVI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R<sup>1</sup> is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, beterocyclic, ester, alkcarbonyl, carbonyl, balide,

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a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S):

R<sup>2</sup>, R<sup>3</sup>, R<sup>6</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>5</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>:

The dotted line indicates the presence of either a single or double bond;

D is S:

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G is SR7.

In another sub-embodiment, a structure of the formula (XVI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = 0,  $NR^8$  or S):

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

 $R^1$  and  $R^2$ ,  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^4$  and  $R^5$  and  $R^4$  and  $R^6$  can also each be comprised of one or two  $CR^7R^8$  groups, connected by a tether, selected

independently from groups that include  $CR^7R^8$ ,  $CR^7R^8CR^7R^8$ ,  $CR^7=CR^8$ ,  $CR^7R^8O$ and  $CR^7R^8NR^7$ ;

The dotted line indicates the presence of either a single or double bond;

D is NR7;

5 G is OR<sup>7</sup>.

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In another sub-embodiment, a structure of the formula (XVI) is given wherein the compound or its pharmaceutically acceptable sults or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, talide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>6</sup>O and CR<sup>8</sup>R<sup>8</sup>NR<sup>7</sup>:

The dotted line indicates the presence of either a single or double bond;

D is NR7:

Gis NR7R8

In another sub-embodiment, a structure of the formula (XVI) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^4$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S):

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkoarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>;

The dotted line indicates the presence of either a single or double bond;

D is NR?;

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G is SR7.

20 In a sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^2$  (X = O,  $NR^8$  or S).

R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup>, R<sup>9</sup>, R<sup>10</sup>, R<sup>10</sup>, R<sup>12</sup>, R<sup>13</sup>, R<sup>14</sup>, R<sup>15</sup>, R<sup>16</sup>, R<sup>17</sup>, R<sup>18</sup> and R<sup>19</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl,

carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^{T}(X=0, NR^{8} \text{ or S})$ .

R<sub>4</sub> and R<sub>3</sub>, R<sub>2</sub> and R<sub>3</sub>, R<sub>3</sub> and R<sub>4</sub>, R<sub>4</sub> and R<sub>5</sub> and R<sub>5</sub> and R<sub>6</sub> can also each be comprised of one or two CR<sub>7</sub>R<sub>8</sub> groups, connected by a tether, selected independently from groups that include CR<sub>7</sub>R<sub>8</sub>, CR<sub>7</sub>R<sub>6</sub>CR<sub>7</sub>R<sub>6</sub>, CR<sub>7</sub><sup>m</sup>CR<sub>8</sub>, CR<sub>7</sub>R<sub>8</sub>O and CR<sub>2</sub>R<sub>8</sub>NR<sub>7</sub>.

D and E are selected from the groups that include CR7R8, O, S or NR7;

G is selected from the groups that include  $OR^7$ ,  $NR^7R^8$  or  $SR^7$ .

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In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^2$  (X = O,  $NR^8$  or S).

R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup>, R<sup>8</sup>, R<sup>9</sup>, R<sup>10</sup>, R<sup>12</sup>, R<sup>13</sup>, R<sup>14</sup>, R<sup>15</sup>, R<sup>16</sup>, R<sup>17</sup>, R<sup>18</sup> and R<sup>19</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phoephonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = 0, NR<sup>8</sup> or S);

R<sub>3</sub> and R<sub>2</sub>, R<sub>2</sub> and R<sub>3</sub>, R<sub>3</sub> and R<sub>4</sub>, R<sub>4</sub> and R<sub>5</sub> and R<sub>5</sub> and R<sub>6</sub> can also each be comprised of one or two CR<sub>7</sub>R<sub>8</sub> groups, connected by a tether, selected independently from groups that include CR<sub>7</sub>R<sub>8</sub>, CR<sub>7</sub>R<sub>8</sub>CR<sub>7</sub>R<sub>6</sub>, CR<sub>7</sub>=CR<sub>5</sub>, CR<sub>7</sub>R<sub>8</sub>O and CR<sub>7</sub>R<sub>8</sub>NR<sub>7</sub>; and

E = O, D = O and  $G = OR^8$ .

In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^{1}$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^{7}$  (X = O,  $NR^{8}$  or S).

 $R^1$ ,  $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^5$ ,  $R^9$ ,  $R^{10}$ ,  $R^{12}$ ,  $R^{13}$ ,  $R^{14}$ ,  $R^{15}$ ,  $R^{16}$ ,  $R^{17}$ ,  $R^{18}$  and  $R^{19}$  are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, anule, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphinyl, phosphoryl, carbonyl, talide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X=0,  $NR^8$  or S).

 $R_1$  and  $R_2$ ,  $R_2$  and  $R_3$ ,  $R_3$  and  $R_4$ ,  $R_4$  and  $R_5$  and  $R_5$  and  $R_6$  can also each be comprised of one or two  $CR_7R_8$  groups, connected by a tether, selected independently from groups that include  $CR_7R_8$ ,  $CR_7R_8CR_7R_8$ ,  $CR_7=CR_8$ ,  $CR_7R_8CR_7$  and  $CR_7R_8NR_7$ .

B = O,  $D = NR^8$  and  $G = OR^8$ .

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20 In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S).

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, eycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester,

alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^2(X=0,NR^8 \text{ or S})$ ;

 $R^1$  and  $R^2$ ,  $R^2$  and  $R^2$ ,  $R^3$  and  $R^4$ ,  $R^4$  and  $R^5$  and  $R^5$  and  $R^6$  can also each be comprised of one or two  $CR^7R^8$  groups, connected by a tether, selected independently from groups that include  $CR^7R^8$ ,  $CR^7R^8CR^7R^8$ ,  $CR^7=CR^8$ ,  $CR^7R^8O$  and  $CR^7R^8NR^7$ ; and

E = O,  $D = CR^7R^8$ , and  $G = OR^8$ .

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In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S).

 $R^2$ ,  $R^3$ ,  $R^6$ ,  $R^7$  and  $R^8$  are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfamyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X=O,  $NR^8$  or S).

 $R^1$  and  $R^2$ ,  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^4$  and  $R^5$  and  $R^6$  and  $R^6$  can also each be comprised of one or two  $CR^7R^8$  groups, connected by a tether, selected independently from groups that include  $CR^7R^8$ ,  $CR^7R^8CR^7R^8$ ,  $CR^7=CR^8$ ,  $CR^7R^8O$  and  $CR^7R^8NR^7$ .

E = O, D = S and  $G = OR^8$ .

In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^{1}$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide,

a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^2$  (X = O,  $NR^8$  or SR:

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>2</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>6</sup>CR<sub>2</sub>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>; and

E = O. D = O and  $G = NR^7R^8$ .

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15 In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaccutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>2</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>2</sup>R<sup>8</sup>, CR<sup>2</sup>R<sup>8</sup>CR<sup>2</sup>R<sup>8</sup>, CR<sup>7</sup>ECR<sup>3</sup>, CR<sup>7</sup>R<sup>8</sup>CO and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>;

R = O  $D = NR^8$  and  $G = NR^7R^8$ .

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In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaccutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sub>1</sub> and R<sub>2</sub>, R<sub>2</sub> and R<sub>3</sub>, R<sub>3</sub> and R<sub>4</sub>, R<sub>4</sub> and R<sub>5</sub> and R<sub>5</sub> and R<sub>6</sub> can also each be comprised of one or two CR<sub>7</sub>R<sub>8</sub> groups, connected by a tether, selected independently from groups that include CR<sub>7</sub>R<sub>8</sub>, CR<sub>7</sub>R<sub>8</sub>CR<sub>7</sub>R<sub>8</sub>, CR<sub>7</sub>=CR<sub>8</sub>, CR<sub>7</sub>R<sub>8</sub>O and CR<sub>7</sub>R<sub>8</sub>NR<sub>7</sub>;

E = O,  $D = CR^7R^8$  and  $G = NR^7R^8$ .

In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include bydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>6</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyi, alkenyi, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester,

alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X=0,  $NR^8$  or S);

 $R_4$  and  $R_2$ ,  $R_2$  and  $R_3$ ,  $R_3$  and  $R_4$ ,  $R_4$  and  $R_5$  and  $R_5$  and  $R_6$  can also each be comprised of one or two  $CR_7R_8$  groups, connected by a tether, selected independently from groups that include  $CR_7R_8$ ,  $CR_7R_8CR_7R_8$ ,  $CR_7=CR_8$ ,  $CR_7R_8O$  and  $CR_7R_8N_8$ :

E = O. D = S and  $G = NR^7R^8$ .

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In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S):

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>8</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>5</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>6</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>;

 $E = CR^7R^8$ , D = O and  $G = OR^8$ .

In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$ or S):

 $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$  are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylaikyl, heterocyclic, sulfonyl, sulfanyl, sulfanonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>2</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>2</sup>R<sup>8</sup>, CR<sup>2</sup>R<sup>8</sup>CR<sup>2</sup>R<sup>8</sup>, CR<sup>2</sup>=CR<sup>8</sup>, CR<sup>2</sup>R<sup>8</sup>O and CR<sup>2</sup>R<sup>8</sup>NR<sup>2</sup>:

 $E = CR^7R^8$ ,  $D = NR^8$  and  $G = OR^8$ .

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in another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R<sup>1</sup> is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

 $R^1$  and  $R^2$ ,  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^4$  and  $R^5$  and  $R^5$  and  $R^6$  can also each be comprised of one or two  $CR^7R^8$  groups, connected by a tether, selected

independently from groups that include  $CR^7R^8$ ,  $CR^7R^8CR^7R^8$ ,  $CR^7=CR^8$ ,  $CR^7R^8O$  and  $CR^7R^8NR^7$ :

 $R = CR^7R^8$ ,  $D = CR^7R^8$  and  $G = OR^8$ .

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5 In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S):

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R¹ and R², R² and R³, R³ and R⁴, R⁴ and R⁵ and R⁵ and R⁶ can also each be comprised of one or two CR′R⁵ groups, connected by a tether, selected independently from groups that include CR⁻R⁵, CR⁻R˚CR¹R³, CR⁻R˚CR¸, CR⁻R˚CO and CR⁻R˚NR⁻;

 $E = CR^7R^8$ , D = S, and  $G = OR^8$ .

In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R<sup>1</sup> is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synfhetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

 $R^1$  and  $R^2$ ,  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^4$  and  $R^5$  and  $R^5$  and  $R^6$  can also each be comprised of one or two  $CR^7R^8$  groups, connected by a tether, selected independently from groups that include  $CR^7R^8$ ,  $CR^7R^8CR^7R^3$ ,  $CR^7=CR^8$ ,  $CR^7R^8O$  and  $CR^7R^5NR^7$ :

 $R = CR^7R^8$ , D = O and  $G = NR^7R^8$ .

In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R<sup>1</sup> is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylaikyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>6</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>2</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>:

 $E = CR^7R^8$ ,  $D = NR^8$  and  $G = NR^7R^8$ .

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In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S):

R<sup>2</sup>, R<sup>3</sup>, R<sup>5</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>3</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>3</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>:

 $E = CR^{7}R^{8}$ ,  $D = CR^{7}R^{8}$  and  $G = NR^{7}R^{8}$ .

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In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $\mathbb{R}^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $\mathbb{XR}^7$  (X = O,  $\mathbb{NR}^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>5</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

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R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>3</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>3</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>;

 $E = CR^{7}R^{8}$ , D = S and  $G = NR^{7}R^{8}$ .

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In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a nahral or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>6</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>:

E = S, D = O and  $G = OR^8$ .

In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaccutically acceptable salts or prodrug is defined as follows:

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 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

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R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbumate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O.NR<sup>3</sup> or S):

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>:

E = S,  $D = NR^8$  and  $G = OR^8$ .

In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>6</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>;

E = S,  $D = CR^7R^8$  and  $G = OR^8$ .

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In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or produce is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkoarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S):

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>2</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>2</sup>R<sup>8</sup>, CR<sup>2</sup>R<sup>8</sup>CR<sup>3</sup>R<sup>8</sup>, CR<sup>2</sup>=CR<sup>8</sup>, CR<sup>2</sup>R<sup>8</sup>O and CR<sup>2</sup>R<sup>8</sup>NR<sup>2</sup>.

E = S, D = S, and  $G = OR^3$ .

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In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable saits or prodrug is defined as follows:

 $\mathbb{R}^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkvarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $X\mathbb{R}^7$  (X = O,  $N\mathbb{R}^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic smino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>6</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>:

E = S, D = O and  $G = NR^7R^8$ .

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In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $\mathbb{R}^1$  is selected independently from the groups that include hydrogen, aikyl, cycloalkyl, aryl, aikaryl, arylatkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $X\mathbb{R}^7$  (X = O,  $N\mathbb{R}^8$  or S):

 $\mathbb{R}^2$ ,  $\mathbb{R}^3$ ,  $\mathbb{R}^4$ ,  $\mathbb{R}^5$ ,  $\mathbb{R}^6$ ,  $\mathbb{R}^7$ ,  $\mathbb{R}^5$  are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $\mathbb{X}\mathbb{R}^7$  (X=0,  $\mathbb{N}\mathbb{R}^8$  or S);

 $R^1$  and  $R^2$ ,  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^4$  and  $R^5$  and  $R^5$  and  $R^6$  can also each be comprised of one or two  $CR^7R^8$  groups, connected by a tether, selected independently from groups that include  $CR^7R^8$ ,  $CR^7R^8CR^7R^3$ ,  $CR^7=CR^8$ ,  $CR^7R^8O$  and  $CR^7R^8NR^7$ :

E = S,  $D = NR^8$  and  $G = NR^7R^8$ .

In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows;

 $R^{\dagger}$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^{7}$  (X = O,  $NR^{8}$ or S);

 $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$  are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

 $R^1$  and  $R^2$ ,  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^4$  and  $R^5$  and  $R^5$  and  $R^6$  can also each be comprised of one or two  $CR^7R^5$  groups, connected by a tether, selected independently from groups that include  $CR^2R^5$ ,  $CR^7R^8CR^7R^5$ ,  $CR^7=CR^8$ ,  $CR^7R^8O$  and  $CR^7R^5NR^7$ ;

R = S,  $D = CR^7R^8$  and  $G = NR^7R^8$ .

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In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $\mathbb{R}^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $X\mathbb{R}^2$  (X = O,  $N\mathbb{R}^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphine, carbamate, ester, alkoarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>2</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>;

E = S, D = S and  $G = NR^7R^8$ .

In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkuryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>5</sup>, R<sup>7</sup>, R<sup>8</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfanonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphinyl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>3</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>:

 $E = NR^7$ , D = O and  $G = OR^8$ .

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In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or produig is defined as follows:

 $\mathbb{R}^{1}$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $X\mathbb{R}^{7}$  (X = O,  $N\mathbb{R}^{8}$  or S);

R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>3</sup> are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or earbohydrate or XR<sup>7</sup> (X = O, NR<sup>8</sup> or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>4</sup> and R<sup>5</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>6</sup>NR<sup>7</sup>:

 $E = NR^7$ ,  $D = NR^8$  and  $G = OR^8$ .

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In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, esier, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S):

 $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$  are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfamyl, sulfamyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkearbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or  $XR^7$  (X = O,  $NR^8$  or S);

R<sup>1</sup> and R<sup>2</sup>, R<sup>2</sup> and R<sup>3</sup>, R<sup>3</sup> and R<sup>4</sup>, R<sup>6</sup> and R<sup>3</sup> and R<sup>5</sup> and R<sup>6</sup> can also each be comprised of one or two CR<sup>7</sup>R<sup>8</sup> groups, connected by a tether, selected independently from groups that include CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>CR<sup>7</sup>R<sup>8</sup>, CR<sup>7</sup>=CR<sup>8</sup>, CR<sup>7</sup>R<sup>8</sup>O and CR<sup>7</sup>R<sup>8</sup>NR<sup>7</sup>:

 $E = NR^7$ ,  $D = CR^7R^8$  and  $G = OR^8$ .

In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or produce is defined as follows:

 $R^1$  is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkearbonyl, carbonyl, balide, a residue of a natural or synthetic amino acid, or carbonydrate or  $XR^7$  (X = O,  $NR^8$  or S);